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| | | |
|-----------------------------|-----------------------|------------------|
| U.S. APPLICATION NUMBER NO. | FIRST NAMED APPLICANT | ATTY. DOCKET NO. |
| 10/549,352 | Caroline Rachel Drake | 70237USPCT |

| | |
|-------------------------------|---------------|
| INTERNATIONAL APPLICATION NO. | |
| PCT/GB04/01241 | |
| I.A. FILING DATE | PRIORITY DATE |
| 03/22/2004 | 03/24/2003 |

22847
SYNGENTA BIOTECHNOLOGY, INC.
PATENT DEPARTMENT
3054 CORNWALLIS ROAD
P.O. BOX 12257
RESEARCH TRIANGLE PARK, NC 27709-2257

CONFIRMATION NO. 5103

371 FORMALITIES LETTER

OC000000022001219

Date Mailed: 01/17/2007

Due: 2/17/07
Docketed

NOTIFICATION OF DEFECTIVE RESPONSE

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495)

- Priority Document
- Copy of the International Application filed on 09/14/2005
- Copy of the International Search Report filed on 09/14/2005
- Copy of IPE Report filed on 09/14/2005
- Preliminary Amendments filed on 09/14/2005
- Biochemical Sequence Diskette filed on 09/14/2005
- Oath or Declaration filed on 07/03/2006
- Biochemical Sequence Listing filed on 11/13/2006
- U.S. Basic National Fees filed on 09/14/2005
- Priority Documents filed on 09/14/2005
- Specification filed on 09/14/2005
- Claims filed on 09/14/2005
- Abstracts filed on 09/14/2005
- Drawings filed on 09/14/2005
- Paper nucleotide sequence listings filed on 09/14/2005

RECEIVED

JAN 22 2007

SYNGENTA
PATENT & LICENSING (RTP, NC)

Applicant's response filed 11/13/2006 is hereby acknowledged. The following requirements set forth in the NOTIFICATION of MISSING REQUIREMENTS mailed 05/02/2006 have not been completed.

- The paper or compact disc copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 CFR 1.821(e). Applicant must provide a substitute paper or compact disc copy of the "Sequence Listing", **as well as an amendment specifically directing its entry into the application** OR a substitute computer readable form (CRF) copy of the "Sequence Listing". These two items must be the same. Applicant must also provide a statement that the content of the sequence listing information recorded in computer readable form is identical to the written (on paper or compact disc) sequence listing and, where applicable, includes no new matter, as required by 37 CFR 1.821(e), 1.821(f), 1.821(g), 1.825(b), or 1.825(d). If the effective filing date is on or after September 8, 2000, see the final rulemaking notice published in the Federal Register at 65 FR 54604 (September 8, 2000) and 1238 OG 145 (September 19, 2000).

Copy sent to
C. Andrews

Applicant is required to complete the response within a time limit of ONE MONTH from the date of this Notification or within the time remaining in the response set forth in the Notification of Missing Requirements, whichever is the longer. No extension of this time limit may be granted under 37 CFR 1.13C, but the period for response set in the Notification of Missing Requirements may be extended under 37 CFR 1.136(a).

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

For questions regarding compliance to 37 CFR 1.821-1.825 requirements, please contact:

- For Rules Interpretation, call (571) 272-0951
- For Patentin Software Program Help, call Patent EBC at 1-866-217-9197 or directly at 703-305-3028 / 703-308-6845 between the hours of 6 a.m. and 12 midnight, Monday through Friday, EST.
- Send e-mail correspondence for Patentin Software Program Help @ ebc@uspto.gov

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

ANITA D JOHNSON

Telephone: (703) 308-9140 EXT 226

PART 1 - ATTORNEY/APPLICANT COPY

| U.S. APPLICATION NUMBER NO. | INTERNATIONAL APPLICATION NO. | ATTY. DOCKET NO. |
|-----------------------------|-------------------------------|------------------|
| 10/549,352 | PCT/GB04/01241 | 70237USPCT |

STIC Biotechnology Systems Branch

RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 10/549,352A

Source: ETOP

Date Processed by STIC: 11/28/06

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION AND PATENTIN SOFTWARE QUESTIONS, PLEASE CONTACT MARK SPENCER, TELEPHONE: 571-272-2510; FAX: 571-273-0221

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 4.4.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker/chkrnote.htm>

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<<http://www.uspto.gov/ebc/efs/downloads/documents.htm>> , EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
3. Hand Carry, Federal Express, United Parcel Service, or other delivery service (EFFECTIVE 01/14/05):
U.S. Patent and Trademark Office, Mail Stop Sequence, Customer Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314

Revised 01/10/06

Raw Sequence Listing Error Summary

ERROR DETECTED

SUGGESTED CORRECTION

SERIAL NUMBER: 10/549,352A

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

- 1 ☐ **Wrapped Nucleics
Wrapped Aminos** The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3; this will prevent "wrapping."
- 2 ☐ **Invalid Line Length** The rules require that a line not exceed 72 characters in length. This includes white spaces.
- 3 ☐ **Misaligned Amino
Numbering** The numbering under each 5th amino acid is misaligned. Do not use tab codes between numbers; use space characters, instead.
- 4 ☐ **Non-ASCII** The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text.
- 5 ☐ **Variable Length** Sequence(s) _____ contain n's or Xaa's representing more than one residue. Per Sequence Rules, each n or Xaa can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing.
- 6 ☐ **PatentIn 2.0
"bug"** A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s) _____. Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences.
- 7 ☐ **Skipped Sequences
(OLD RULES)** Sequence(s) _____ missing. If intentional, please insert the following lines for each skipped sequence:
(2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
(i) SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading)
(xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
This sequence is intentionally skipped

Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences.
- 8 ☐ **Skipped Sequences
(NEW RULES)** Sequence(s) _____ missing. If intentional, please insert the following lines for each skipped sequence.
<210> sequence id number
<400> sequence id number
000
- 9 ☐ **Use of n's or Xaa's
(NEW RULES)** Use of n's and/or Xaa's have been detected in the Sequence Listing.
Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present.
In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
- 10 ☐ **Invalid <213>
Response** Per 1.823 of Sequence Rules, the only valid <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220>-<223> section is required when <213> response is Unknown or is Artificial Sequence
- 11 ☒ **Use of <220>** Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section.
(See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules)
- 12 ☐ **PatentIn 2.0
"bug"** Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk.
- 13 ☐ **Misuse of n/Xaa** "n" can only represent a single nucleotide; "Xaa" can only represent a single amino acid



IFWP

RAW SEQUENCE LISTING

DATE: 11/28/2006

PATENT APPLICATION: US/10/549,352A

TIME: 14:28:06

Input Set : E:\70237USPCT Second Substitute Seq List.txt

Output Set: N:\CRF4\11282006\J549352A.raw

3 <110> APPLICANT: DRAKE, Caroline Rachel
 4 PAINE, Jacqueline Ann Mary
 5 SHIPTON, Catherine Ann
 7 <120> TITLE OF INVENTION: Enhanced Accumulation of Carotenoids in Plants
 9 <130> FILE REFERENCE: 70237USPCT
 11 <140> CURRENT APPLICATION NUMBER: US 10/549,352A
 12 <141> CURRENT FILING DATE: 2005-09-14
 14 <150> PRIOR APPLICATION NUMBER: PCT/GB2004/001241
 15 <151> PRIOR FILING DATE: 2004-03-24
 17 <150> PRIOR APPLICATION NUMBER: US60/457,053
 18 <151> PRIOR FILING DATE: 2003-03-22
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 43 tagcaactca tgcacatcat catgcctctc tcaacctatt cattcctact catctacata 360
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 53 gcaaaagaaa gagagaaaaga acaacacaat gctgcgtcaa ttatacatat ctgtatgtcc 660
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 71 tctagggggc aatccgccgc agtggctcca tccggcgcc tcaaatccat gactggattc 1200
 73 ccagtgaaga aggtcaacac tgacattact tccattacaa gcaatgggtg aagagtaaag 1260
 75 tgcataaac caactacggt aattggtgca ggcttcggtg gcctggcact ggcaattcgt 1320
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Does Not Comply
Corrected Diskette Needed

(pg. 1, 3, 5)

Pls explain source
of genetic material.

See item # 11

on error
Summary
Sheet.

RAW SEQUENCE LISTING

DATE: 11/28/2006

PATENT APPLICATION: US/10/549,352A

TIME: 14:28:06

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Output Set: N:\CRF4\11282006\J549352A.raw

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| 97 | accggcgcat | tagttcaggg | gatgataaag | ctgtttcagg | atctgggtgg | cgaagtcgtg | 1980 |
| 99 | ttaaaccgcca | gagtcagcca | tatggaaaacg | acaggaaaaca | agattgaagc | cgtgcattta | 2040 |
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RAW SEQUENCE LISTING

DATE: 11/28/2006

PATENT APPLICATION: US/10/549,352A

TIME: 14:28:06

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 261 gaccttttct tctttttatt tttttgagct ttgatcttct tttaaactga tctatttttt 960
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 269 tctagggggc aatccgcgcg agtggtcca ttcggcggcc tcaaatccat gactggatc 1200

PLS explain source of genetic material.

See item #11

Invalid response

on error

Summary Sheet.

RAW SEQUENCE LISTING

DATE: 11/28/2006

PATENT APPLICATION: US/10/549,352A

TIME: 14:28:06

Input Set : E:\70237USPCT Second Substitute Seq List.txt

Output Set: N:\CRF4\11282006\J549352A.raw

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| 275 | ctacaagctg | cggggatccc | cgtcttactg | cttgaacaac | gtgataaacc | cggcggtcgg | 1380 |
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| 279 | cccagtgcc | ttgaagaact | gtttgcactg | gcaggaaaac | agttaaaaga | gtatgtcgaa | 1500 |
| 281 | ctgctgccgg | ttacgccgtt | ttaccgcctg | tgttgggagt | cagggaagg | ctttaattac | 1560 |
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| 285 | ggttatcgte | agtttctgga | ctattcacgc | gcggtgttta | aagaaggcta | tctgaagctc | 1680 |
| 287 | ggtagctgtc | ctttttttatc | gttcagagac | atgcttcgag | ccgcacctca | actggcgaaa | 1740 |
| 289 | ctgcaggcat | ggagaagcgt | ttacagtaag | gttgccagtt | acatcgaaga | tgaacatctg | 1800 |
| 291 | cgccaggcgt | tttctttcca | ctcgctgttg | gtgggaggca | atcccttcgc | cacctcatcc | 1860 |
| 293 | atttatacgt | tgatacacgc | gctggagcgt | gagtggggcg | tctggtttcc | gcgtggcggc | 1920 |
| 295 | accggcgcat | tagttcaggg | gatgataaag | ctgtttcagg | atctgggtgg | cgaaagtctg | 1980 |
| 297 | ttaaacgcc | gagtcagcca | tatggaaacg | acaggaaaca | agattgaagc | cgtgcattta | 2040 |
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| 301 | tatcgcgacc | tgtaagcca | gcacctgcc | gcggttaagc | agtccaacaa | actgcagact | 2160 |
| 303 | aagcgcagta | gtaactctct | gtttgtgctc | tattttgggt | tgaatcacca | tcatgatcag | 2220 |
| 305 | ctcgcgcatc | acacgggttg | tttcggcccc | cgttaccgcg | agctgattga | cgaaattttt | 2280 |
| 307 | aatcatgatg | gcctcgagca | ggactttctca | ctttatctgc | acgcgccctg | tgacacggat | 2340 |
| 309 | tcgtcactgg | cgctgaagg | ttgcggcagt | tactatgtgt | tggcgccggt | gccgcattta | 2400 |
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| 313 | taccttgagc | agcattacat | gcctggctta | cgagtcagc | tggtcacgca | ccggatgttt | 2520 |
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| 329 | acgcgataga | aaacaaaata | tagcgcgcaa | actaggataa | attatcgcg | gcgggtgtcat | 3000 |
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| 339 | gttctctcac | cccggataag | aaacccttaa | gcaatgtgca | aagtttgcat | tctccactga | 3300 |
| 341 | cataatgcaa | aataagatat | catcgatgac | atagcaactc | atgcatcata | tcatgcctct | 3360 |
| 343 | ctcaacctat | tcattcctac | tcatctacat | aagtatcttc | agctaaatgt | tagaacataa | 3420 |
| 345 | accataagt | cacgtttgat | gagtattagg | cgtgacacat | gacaaatcac | agactcaagc | 3480 |
| 347 | aagataaagc | aaaatgatgt | gtacataaaa | ctccagagct | atatgtcata | ttgcaaaaag | 3540 |
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| 367 | cagaaccgtc | gactctagag | aagccattta | aatcgccgcc | accatggcca | tcatactcgt | 4140 |

RAW SEQUENCE LISTING

DATE: 11/28/2006

PATENT APPLICATION: US/10/549,352A

TIME: 14:28:06

Input Set : E:\70237USPCT Second Substitute Seq List.txt

Output Set: N:\CRF4\11282006\J549352A.raw

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428 <400> SEQUENCE: 3
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431 tattctgtag tacagacaaa actaaaagta atgaaagaag atgtggtgtt agaaaaggaa 120
433 acaatatcat gagtaattgt tgagcattat gggaccacga aataaaaaga acattttgat 180
435 gagtcgtgta tcctcgatga gctcaaaaag ttctctcacc cggataaga aaccttaag 240
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The type of errors shown exist throughout the Sequence Listing. Please check subsequent sequences for similar errors.

VERIFICATION SUMMARY

DATE: 11/28/2006

PATENT APPLICATION: US/10/549,352A

TIME: 14:28:07

Input Set : E:\70237USPCT Second Substitute Seq List.txt

Output Set: N:\CRF4\11282006\J549352A.raw

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- 1) Response to Notification of Defective Response (3 pages total)
- 2) Copy of Notification of Defective Response dated January 17, 2007
- 3) Computer Readable Form of the Substitute Sequence Listing
- 4) Paper Copy of the Substitute Sequence Listing
- 5) Return Postcard

Sandra Freeland

Name

Sandra Freeland

Signature